



Installation Manual

**INTEGRATED ACCESS CONTROLERS
PROXIMITY CARD READERS**

KZC-800-U/H

KZC-800-M

KZC-900-U/H



VERSION 1.0



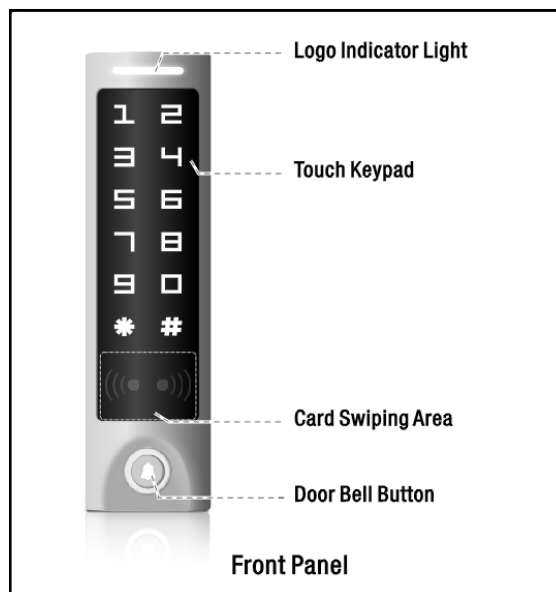
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1. Introduction



KZC-800-U/H/M



KZC-900-U/H

Integrated access controllers/readers

The KZC-800-U/H/M i KZC-900-U/H access control units realize the card reading and keypad operation functions, lock, alarm, ring bell, exit button and the magnetic contact switch on the door. Those units can be use as standalone controller or standard Wiegand reader.

These models supports 13.56MHz IC Mifare cards (KZC-800-M) or 125KHz EM, HID Prox cards (KZC-800-U/H i KZC-900-U/H). It controls 1 door, supports up to 2000 users in total, each user have one card and one PIN (PIN - 1234 as default, should be change for normal using).

The access control unit supports 1 master code, one manager add card, one manager delete card, 1 anti-duress card and 1 anti-duress PIN, providing users with easy operation and safe guarantee.

Main Features

- ♦ Aluminum alloy case, waterproof, fully potted, confirms to IP65
- ♦ Touch panel
- ♦ Built-in 125KHz (EM, HID card) and 13.56MHz(IC, CPU card, ISO14443A) reader (KZC-800-M only)
- ♦ Digital backlit key. The back light can be set to Normal ON, Normal OFF or Auto.
- ♦ With door bell function, build-in or external door bell optional.
- ♦ Multi-function, operating as slave reader, single door, anti-pass back function, etc., suitable for various occasions.

Detail features

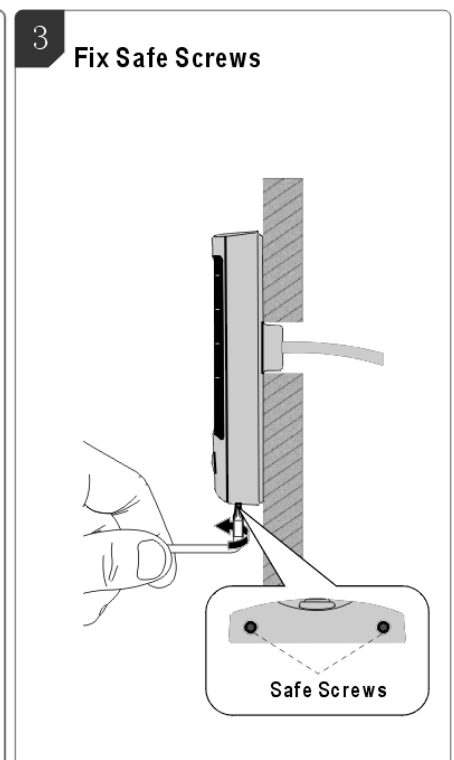
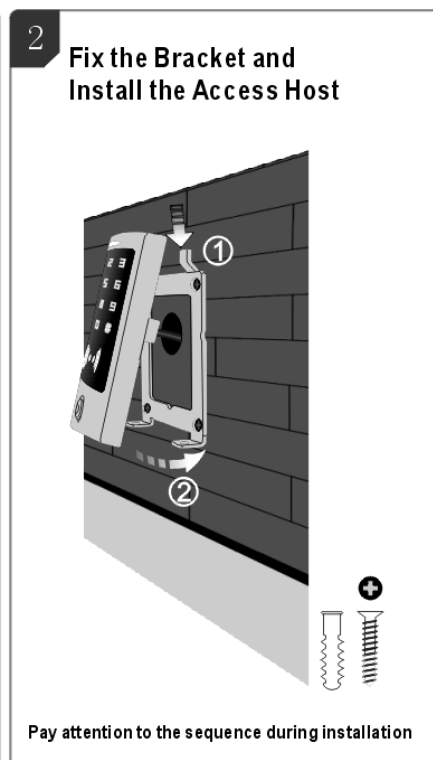
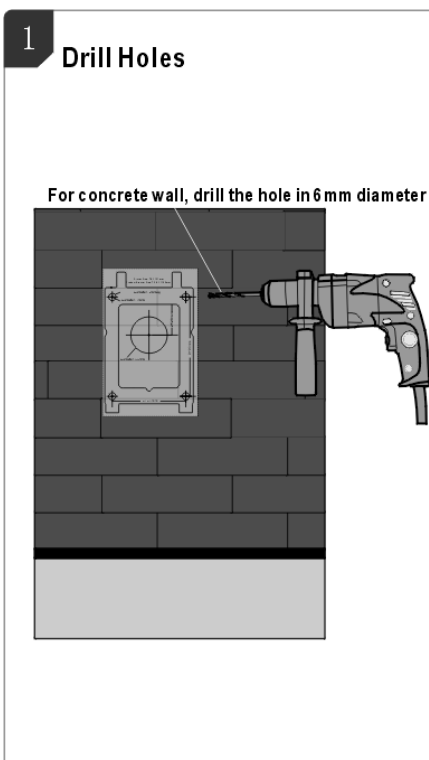
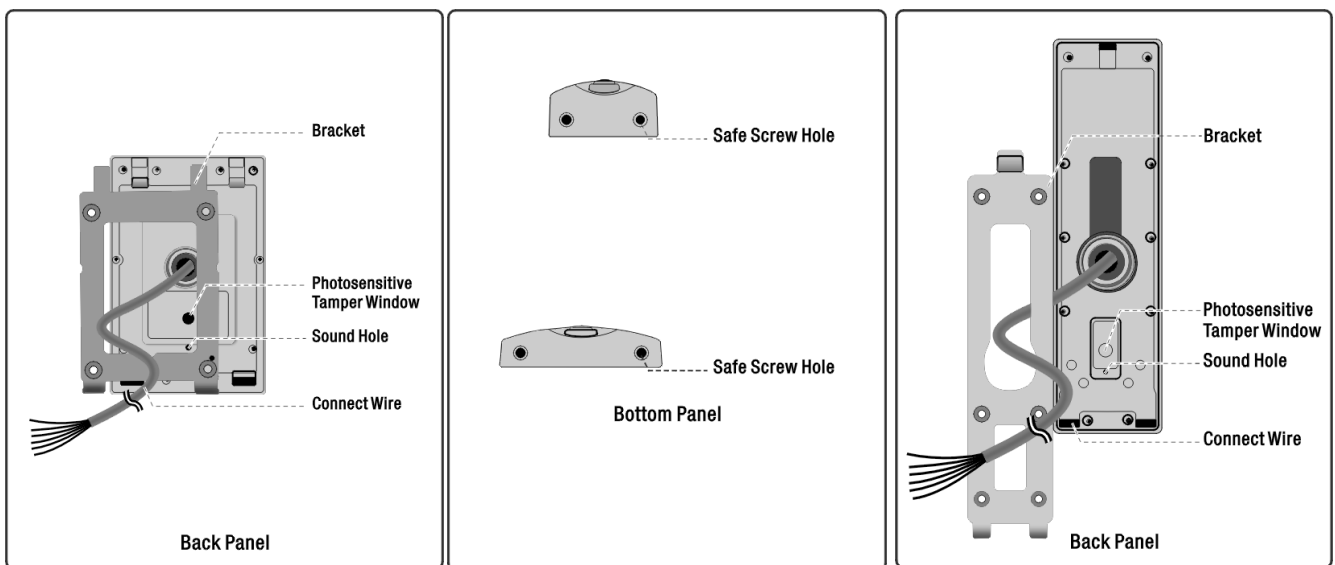
- ◆ 2 000 users with card and PIN
- ◆ 3 identification modes: card, PIN, card + PIN
- ◆ Read both 125KHz EM & HID card
- ◆ PIN length: 4-8 digits
- ◆ Pulse mode, Toggle mode of lock relay
- ◆ Wiegand 26-37 input & output
- ◆ Can be worked as controller or reader
- ◆ One relay output for door opening, inputs for door status detecting and open door by button
- ◆ Card block enrollment
- ◆ Manager cards for adding or deleting card user easily
- ◆ Very low power consumption (35mA)
- ◆ Backlight keypad
- ◆ Light and sound of keypad can be set on/off
- ◆ Support door bell connection
- ◆ Built in light dependent resistor (LDR) for anti tamper
- ◆ Built in buzzer
- ◆ Red, yellow and green LED display the working status
- ◆ 12-24V DC

Technical specifications

Operating Voltage	12~24V DC
User Capacity	2 000 with card and PIN (1234 - default PIN)
Keypad	12 keys, 3 x 4 digits and 2 x 6 digits (KZ-900)
Card Type	EM & HID 125 KHz card, Mifare (13,56 MHz)
Card Reading Distance	3~6 cm (125 kHz), 2~5 cm (13,56 MHz),
Recommended supply power	2A (controller unit plus electric lock)
Idle Current	≤35mA
Lock Output Load	Maximum 1A
Alarm Output Load	Maximum 1A
Bell Output Load	Maximum 1A
Operating Temperature	-20~60°C
Operating Humidity	0%~95% (non condensing)
Environment	Confirms to IP65
Adjustable Door Relay time	1~99 seconds, 3s - factory default
Adjustable Alarm Time	0~3 minutes, 1 min. - factory default
Wiegand Interface	Wiegand 26~37 input & output
Wiring Connections	Electric lock, External alarm, Door status (NC), Exit button (NO), Bell
Dimensions: KZC-800-U/H/M KZC-900-U/H	125 x 83 x 22 mm (HxWxD) 159 x 43 x 22 mm (HxWxD)

Unit installation

- ◆ Put the paper sticker (included in box) on the wall in correct horizontal and vertical position in the place where controller should be locate
- ◆ Drill 4 holes diameter 6mm (rubber bungs) on the wall for the screws and 1 hole 30 or 22mm for the cable - as written on the sticker (figure 1)
- ◆ Fix the metal product bracket firmly on the wall with 4 flat head screws
- ◆ Thread the cable through the cable hole
- ◆ Attach the unit to the metal bracket (figure 2)
- ◆ Fix 2 pcs. safe screws at the bottom of the unit using supplied tools (fig. 3)

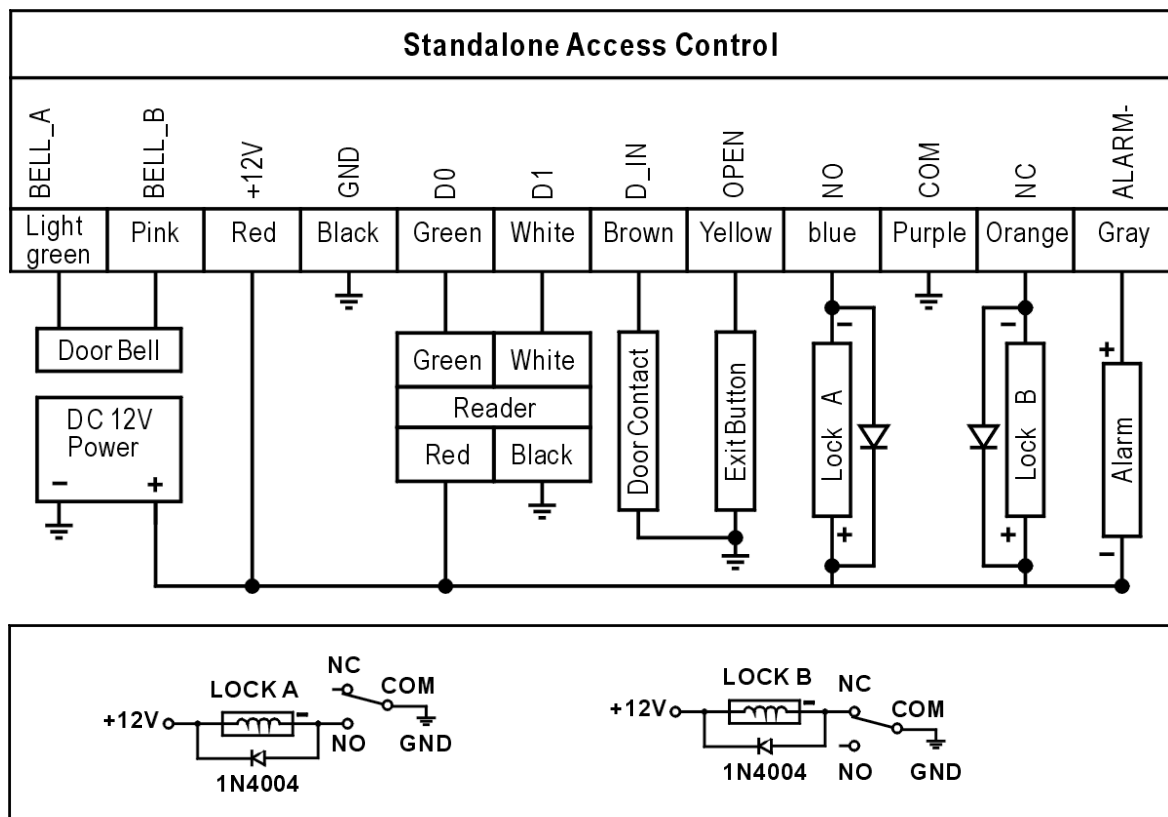


2. Access standalone controller mode

In this mode unit works as standalone controller. This is factory default mode (command 7-1-1-#). It's possible to connect additional reader for two way control and activate anti-passback feature. To change unit for Wiegand reader mode please use command: 7-1-0-# (this mode is describe on next pages) .

Wiring diagram

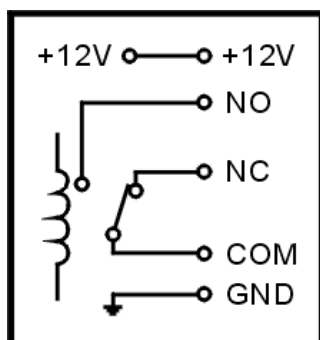
Color	Function	Description
Light green	BELL_A	Bell control output
Pink	BELL_B	Bell control output
Red	+12V	Supply power input (12~24V DC)
Black	GND	Supply power input (12~24V DC)
Green	D0	Wiegand input
White	D1	Wiegand input
Brown	D_IN	Door contact input
Yellow	Open	Request to Exit Button input
Blue	NO	Lock relay output
Purple	COM	Lock relay output
Orange	NC	Lock relay output
Gray	ALARM	Alarm output



Lock A connection - for NC type - Normally Close - locked without supply power

Lock B connection - for NO type - Normally Open - locked with supply power

Installation and Wiring Diagram



Principle of Electronic Lock

The relay will close contact to unlock the lock and will release after unlocking

COM: common, relay contact

NC: normal close, normally keep closed to COM

NO: normal open, normally keep opened to COM

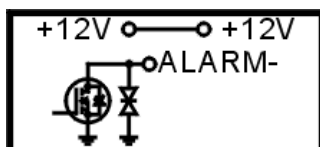
Wiring of electronic lock

Connect COM and GND, connect two ends of electronic lock with +12V and NO (or NC), complete the circuit.

Type A electronic lock: Fail Secure lock (Unlock when power on), such as Electronic Controlling Lock, smart lock etc.

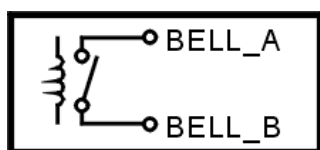
Type B electronic lock: Fail Safe lock (Unlock when power off), such as Electromagnetic Lock, Electronic Bolt Lock, etc.

1N4004 Diode: prevent high voltage to two ends of the electronic lock while the contact of relay disconnect . Without diode, there will be high voltage pulse interference to circuits and the life time of the relay will be greatly reduced.



Principle of Alarm Connector

The field-effect tube will be conducted when alarm is activated; It will be not conducted when alarm is removed



Principle of Door Bell Connector

Each press of door bell button, contact of relay in BELL_A and BELL_B will close contact for 200ms then release.

3. Manager Card operation

3.1 Add user card(s)

Read manager add card	Read User card	Read manager add card
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Cards can be added continuously.

3.2 Delete user card(s)

Read manager delete card	Read User card	Read manager delete card
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Cards can be deleted continuously.

4. User Operation

4.1 To unlock the lock by one card

Read valid card once	Lock will be unlocked	
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4.2 To unlock the lock for card and PIN users

Read valid card once	Input 4-6 digits PIN #	Lock will be unlocked
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4.3 To unlock the lock for card or PIN users

Read valid card once, or	Input 4-6 digits PIN #	Lock will be unlocked
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4.4 To unlock the lock for multi cards

Read 2-10 valid card	Lock will be unlocked	
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Time interval can not exceed 5s. Precondition: Set the door entry by card only, and set "2-10" for opening the door by multi cards.

4.5 Toggle Mode

In normal mode, every time a valid card/tag read or PIN input, the relay will operate, for the pre-set relay pulse time.

In Toggle mode, every time a valid card/tag read or PIN input, the relay changes state, which will not turn back until read card/tag or input PIN again.

4.6 To change the PIN of a PIN user

Read card	Input old PIN #	Input new PIN #	Input new PIN #
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Or

User ID number	Input old PIN #	Input new PIN #	Input new PIN #
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Remark:

For the users with card and default PIN "1234", must read card to change the PIN for the first time.

For users without card, must get ID number and initial new PIN from the default.

4.7 Door Bell

Press the door bell button on the access control unit, the buzzer will sound ring back tone, at the same time, the I box's built-in door bell or the outer door bell will ring.

5. Alarm

5.1 Anti-tamper Alarm

When the access control unit is disassembled illegally, the access control unit's buzzer and the external alarm will operate.

5.2 Door status contact

When connect with door status contact, if the door is opened illegal, the access control unit's buzzer and the external alarm will operate.

5.3 Anti-duress alarm

When read duress card / input 8 digits duress PIN#, the corresponding lock will open, at the same time, the external alarm will operate, but the access control unit's buzzer will not operate.

5.4 To remove the alarm

Read valid card or input master code can remove the alarm. If there is no operation, the alarm will remove automatically after 1 minute.

6. Keypad lockout or alarm

To prevent consecutive enter of an invalid master code, user password, or anti-duress or invalid card, this function will be activated after 10 times consecutive errors input. There are 3 mode available: No keypad lockout or alarm, keypad locked for 10 minutes, alarm for 1-3 minutes.

7. To Reset to Factory Default

Touch panel access control, power off, power on, the LED will turn in orange after 1 second, press * within 1 second, release it until hearing two shot beep, then hearing a long beep, enter normal mode, reset to factory default setting is successfully.

Remark: Reset to factory default, the users' information is still retained.

8. Sound and light indication

Operation Status	Logo Color	Buzzer
Standby	White	
Press Key		Short Ring
Read Card	Green	Long Ring
Unlock the lock	Green	Long Ring
Operation Successful	Green	Long Ring
Operation Failed		3 Short Ring
PIN Inputting	Slow Flash Red	
Card & PIN Reading	Slow Flash Red	
Multi Card Reading	Slow Flash Red	
1 st Menu	Slow Flash Red	
2 nd Menu	Slow Flash Orange	
Under Setting	Orange	
Manager Card Reading	Orange	2 Short Ring
Manager Card Exit	White	Long Ring
Alarm	Quick Shine in Red	Alarm
Ring-back Tone		Ding-Dong

9. Master setting

Logo LED Light indication		Remarks	Functions
White logo	Red logo LED flash	Factory default : 888888	To enter the programming mode
*	6-8 digits Master code #		

Enter Master Operation Mode. It will return to normal mode if there is no right Master PIN input in 5 seconds. After input of right master PIN, it will also return to normal mode if there is no valid operation in 30 seconds. Press “#” to confirm the input number, return to previous menu by press “*”, the logo light will indicate the operation mode.

Note that to undertake the following programming, the master user must be logged in.

9.1 Basic Operation :

Basic Operation			
Red Flash	Orange	Functions	Remarks
0	6~8 digits new master code # Repeat 6~8 digits new master code #	Factory default : 888888	Change the master code
1	Read card	1. The user ID number is any number among 1-2000. 2. Card number must be 8 or 10 digits, if the card number is less than 8 or 10 digits, input 0 before the card number 3. User can be added continuously without exiting programming mode	Rotate Operation ^① To add card users ^②
	1-2000(ID), #, read card		
	8 or 10 digits card number ^① #		
	1~2000(User ID number), #, 8 or 10 digits card number #		
2	1~2000(User ID number), #, 4~6 digits PIN ,#	To add PIN users	Rotate Operation
	Read card	Delete one card	
	8 or 10 digits card number , #	Delete one user	
2	0000, # (Note: This is a dangerous option, so use with care)	Delete All users	
3	0, #	Entry is by Card only	To set open way
	1, #	Entry is by Card and PIN together	
	2, #	Entry is by either card or PIN (Factory default setting)	
4	0, #	To set door relay time 3 s	Factory default setting: 3 s
	1-99, #	To set door relay time 1-99S	

Note:

- ① 8 digits card number, such as: 118, 32319, some cards has no mark of the first 3 digits 118, remains 32319 it requires to add card by read card, adding cards by input card number is not acceptable; 10 digits card number, such as 0007765567, some cards has no mark of the first 3 digits 000, remains 7765567, requires to input 10 digits 0007765567 by add 000 before 7765567.
- ② A PIN 1234 is added for a card, it can not be used to unlock the lock, can be used to change PIN.
- ③ After one card is added, you can continue to add other cards or PIN without exiting the mode 1.

Advanced Application				
Red Flash	Orange Flash	Orange	Functions	Remarks
6	1	Read card	Set add card	To add card user
	2	Read card	Set delete card	To delete card user
	3	Read card	To set duress users	To set duress user
	4	8 digits duress PIN,#	To set duress PIN	To set duress PIN
	5	0, #	Automatic mode (Factory default)	Relay setting
		1, #	Set Zone 1as Auto-lock switch	
	6	1-10, #	Factory default setting :1	To set open door by multi cards
	7	User ID number # card number # card quantity #	The card number must be consecutive Card quantity is between 1-2000	To add a series cards users.
	9	1	Administrator open door 1	Exit automatic
System Setting				
7	0	1-15, #	Factory default setting: 0	To set facility code
	1	0, #	Wiegand reader mode	To set working mode
		1, #	Standalone for single door (Factory default)	
		5, #	Anti-passback for single door	
	2	26-37, #	(Factory default setting: 26)	To set Wiegand format
	3	0, #	4-6 digis key press sends card number	To set keypad transmission format
		1, #	Each key press sends 4 bit output data (Factory default)	
		2, #	Each key press sends 8 bit output data	
	4	0, #	Close Alarm	To set Alarm
		1-3, #	Alarm time is 0-3 minutes for option (Factory default 1 minute)	
Opeional Setting				
8	1	0, #	Indicator light OFF	To set logo LED light
		1, #	Indicator light ON (Factory default)	
	2	0, #	Disable buzzer	
		1, #	Enable buzzer (Factory default)	
	3	0, #	Disable keypad backlight	
		1, #	Enable keypad backlight (Factory default)	
		2, #	Auto mode	
	4	0, #	Disable anti tamper alarm (Factory default)	
		1, #	Enable anti tamper alarm	
	5	0, #	No keypad lockout or alarm (Factory default)	
		1, #	In 10 minutes, if there's 10 times ⑨ invalid card or wrong password, the device will lock on for 10 minutes.	
			2, #	

Remark:

- ① Every time a valid card/tag read or PIN input in in Toggle mode, the relay changes state, which will not turn back until read card/tag or input PIN again.
- ② The door will open only when read the valid card quantity up to the quantity set. It is only for Card Only mode.
- ③ The card number must be consecutive, Card quantity is between 1-2000.
- ④ After unlocking, enter the normal working state.
- ⑤ After closed the alarm, anti tamper, anti-duress and door magnetic alarm are invalid.
- ⑥ Refers to static state, normal indication according to operation.
- ⑦ Enter the administrator password correctly, the buzzer alarm in the normal phonation.
- ⑧ Each key press or read card, keypad backlight will light 30 sec. delay after the close, in close state , the first press key is just to start the keyboard light, no any function.
- ⑨ 10 times consecutive errors including: enter an invalid master code, user password, or anti-duress or invalid card.
10. Set Wiegand ouput format option (7-2->26 to 37 bits) concern EM (Unique) card. HID Prox output format depends of number of bits programing on card.

10. Various Working Modes Application

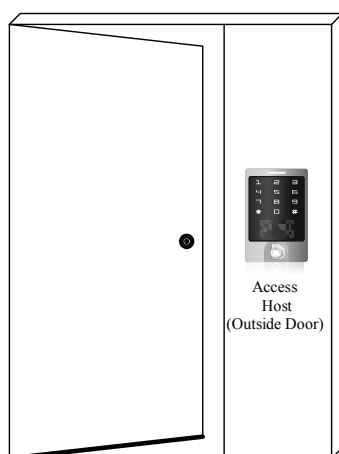
The device has 3 working modes:

1. Wiegand Reader
2. Standalone for single door (Factory default setting)
3. Anti-pass back for single door

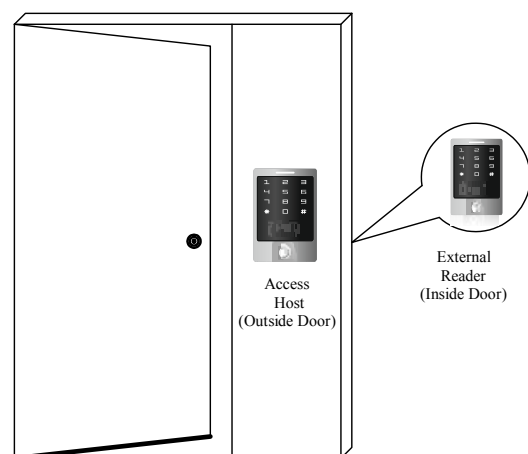
Through Wiegand data lines , can make the device and external card reader are connected together, to realize of various functions.

Card number and PIN etc information will store in the device.

The external reader only read card or as a device for input PIN, you can connect with a numbers of readers , but function all same.



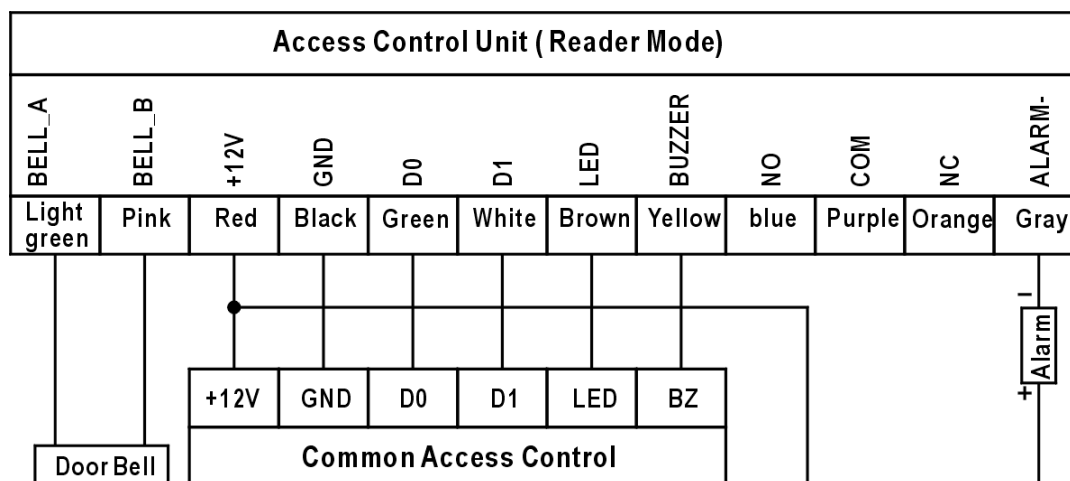
Standalone for single door



Anti-pass back for single door

11. Wiegand Reader Mode

In this mode unit works as reader (7-1-0-#). It can be connect to the stand-ard controller with Wiegand port. To change unit for Access Controller mode please use command: 7-1-1-# (this mode is describe on previous pages).



11.1 Wiegand reader mode

When LED level is low, logo light will turn into Green, after 30 seconds or LED level rising, Logo light will back to normal.

When BZ level is low, the Buzzer will beep, after 30 seconds or BZ level rising, the Buzzer will back to normal.

When the access controller worked as reader, both card number and keypad transmits in Wiegand format, the output data are shown by the Low Level of D0&D1 cable:

D0: Low level means 0, green cable

D1: Low Level means 1, white cable

The Pulse Width of Low level is 40uS, Bit period is 2mS.

The digit of Card number can be set to 26~27Bit, should be matched with the controller. (Factory default is 26Bit) Wiegand 26 card reader, HID card can output Wiegand 26~37 automatically, other cards are output Wiegand 26 compulsively. Wiegand 27~37 card reader, all cards are forced output Wiegand 27~37.

In this mode, the access host works as reader, it can be done below settings.

Adminstrator Setting				
White		Red flash	Functions	Remarks
*		6-8 digits Master code #	Enter programming mode	Factory default :888888
Reader Setting				
Red Flash	Orange Flash	Orange	Functions	Remarks
0		6~8 digits new master code # Repeat 6~8 digits new master code #	Factory default : 888888	Change the master code
7	0	0-15, #	Factory default setting: 0	To set facility code
	2	26-37, #	Factory default setting:26	To set Wiegand format
	3	0, #	4-6 digis key press sends card number	To set keypad transmission format
		1, #	Each key press sends 4 bit output data (Factory default setting)	
		2, #	Each key press sends 8 bit output data	
	4	0, #	Close Alarm	To set Alarm
		1-3, #	Alam time is 0-3 minutes for option	
	5	0, #	No door bell function	To set door bell function
		1, #	Built-in door bell- ON (Factory default setting)	
		2, #	External door bell-ON	
		3, #	Built-in & external door bell - ON	
8	1	0, #	Disable	To set logo LED light
		1, #	Enable(Factory default setting)	
	2	0, #	OFF-The device will be in silence except enter the programming mode	To set keypad tone ON or OFF
		1, #	ON-The device will give the voice when press the keys (Factory default setting)	
	3	0, #	Disable keypad backlight	To set keypad backlight
		1, #	Enable keypad backlight (Factory default setting)	
		2, #	Automatic mode Normally it is off(sleeping mode) but wake up with human approach	To set keypad backlight
	4	0, #	Disable anti tamper alarm (Factory default setting)	To set anti tamper alarm
		1, #	Enable anti tamper alarm	

Keypad transmission can be set in the following 3 models:

Model 0

The Reader will transmit the PIN data in card number format when it receives the last key (#) press after PIN code

Format: Decimal card number with 10-digit , Facility Code(1st ~ 4th digit)+ PIN Code (5th ~ 10th digit)

(Facility code is any digits between 0~15, PIN code is 4~6 digits)

Example: Facility code:15

PIN code: 2999 -> Press 2999#, then output format will be: 0015002999

PIN code: 999999 -> Press 999999#, then output format will be: 0015999999

Model 1: 4-Bit

The output data is provided in following format after every key is pressed:

1 (0001), 2 (0010), 3 (0011)

4 (0100), 5 (0101), 6 (0110)

7 (0111), 8 (1000), 9 (1001)

* (1010), 0 (0000), # (1011)

Model 2: 8-Bit

The output data is transmitted in following format after every key is pressed:

1 (11100001), 2 (11010010), 3 (11000011)

4 (10110100), 5 (10100101), 6 (10010110)

7 (10000111), 8 (01111000), 9 (01101001)

* (01011010), 0 (11110000), # (01001011)

11.2 Standalone for Single door

In this mode, the access host uses can open the door by valid card or PIN, it supports connecting external card reader for exiting door.

11.3 Anti-pass back for Single Door

- ♦ In this mode, access host install outside is for entering door, external reader inside for exiting door, they build up a single door anti-pass back system, access host is the anti-pass back master unit.
- ♦ Read valid card or input PIN on access host, door will open; read valid card or input PIN on external reader, door will open.
- ♦ When input duress PIN/Card, the door will open, at the same time, the external alarm operates
- ♦ When input duress PIN/Card on external reader, the door will open, at the same time, the external alarm operates.
- ♦ Open type forced Card Only, the user PIN is invalid.
- ♦ he users can only enter door when read valid card on access host, and exit from the inside external reader. If without the entering record from access host, the users can not exit from the inside reader, also the users can't enter in twice without the first exit record.

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